1.6 Mandatory Measures and Compliance Approaches

In addition to the mandatory measures (Section 1.1.6), the Standards provide two basic methods for complying with low-rise residential energy budgets: the prescriptive approach and the performance approach. The mandatory measures must be installed with either of these but note that mandatory measures may be superseded by more stringent measures under the prescriptive approach.

1. The prescriptive approach (composed of several prescriptive packages) (Section 1.6.2) is the simpler. Each individual energy component of the proposed building must meet a prescribed minimum efficiency. The prescriptive approach offers relatively little design flexibility but is easy to use. There is some flexibility for building envelope components, such as walls, where portions of the wall that do not meet the prescriptive insulation requirement may still comply as long as they are area-weighted with the rest of the walls, and the average wall performance complies.
2. The performance approach (Section 1.6.3) is more complicated but offers considerable design flexibility. The performance approach requires an approved computer software program that models a proposed building, determines its allowed energy budget, calculates its energy use, and determines when it complies with the budget. Compliance options such as window orientation, shading, thermal mass, zonal control, and house configuration are all considered in the performance approach. This approach is popular with production home builders because of the flexibility and because it provides a way to find the most cost-effective solution for complying with the Standards.

For additions and alterations, see Chapter 8 for details of compliance approaches that are available.

1.6.1 Mandatory Measures

With either the prescriptive or performance compliance paths, there are mandatory measures that must always be installed. Many of the mandatory measures deal with infiltration control and lighting; others require minimum insulation levels and equipment efficiency. The minimum mandatory levels are sometimes superseded by more stringent prescriptive requirements. For example, if mandatory measures specify R-19 ceiling insulation and the prescriptive approach, Package D, is used, R-30 or R-38 ceiling insulation (depending on climate zone) must be installed. Conversely, the mandatory measures may be of a higher efficiency than permitted under the performance approach; in these instances, the higher mandatory levels must be installed. For example, a building may comply the performance computer modeling with only R-7 insulation in a raised floor, but R-13 must be installed because that is the mandatory minimum in prescriptive Package D.